FIG.1

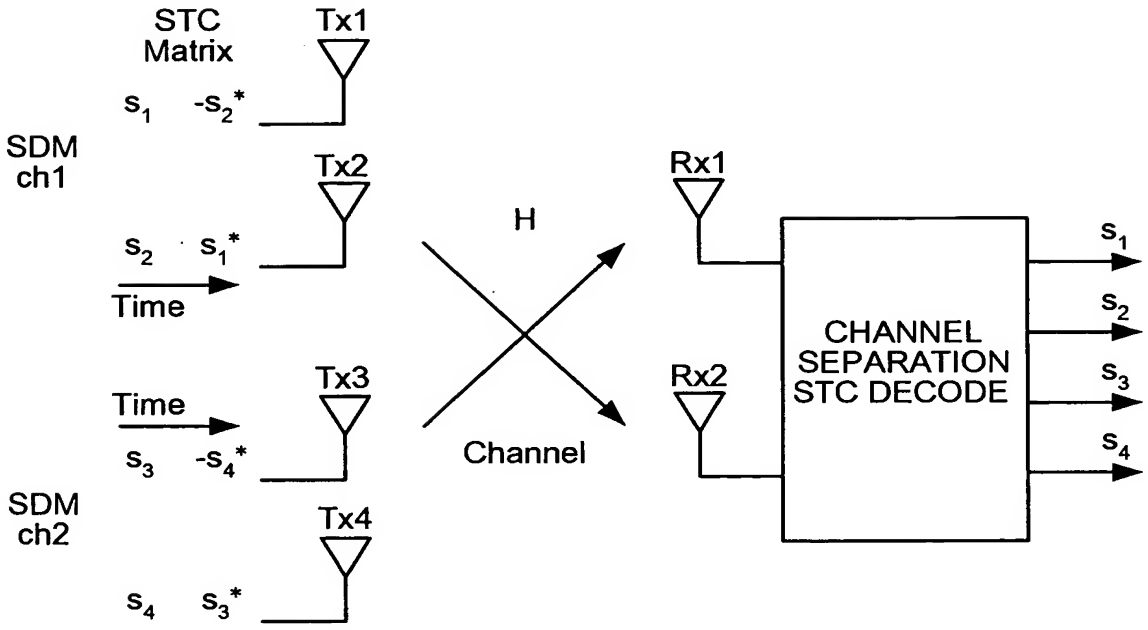

STC
Matrix
Tx1
s_1 $-s_2^*$
SDM
ch1
Tx2
s_2 s_1^*
Time
H
Rx1
Rx2
CHANNEL
SEPARATION
STC DECODE
s_1
s_2
s_3
s_4
Time
Tx3
s_3 $-s_4^*$
Channel
SDM
ch2
Tx4
s_4 s_3^*

FIG.2

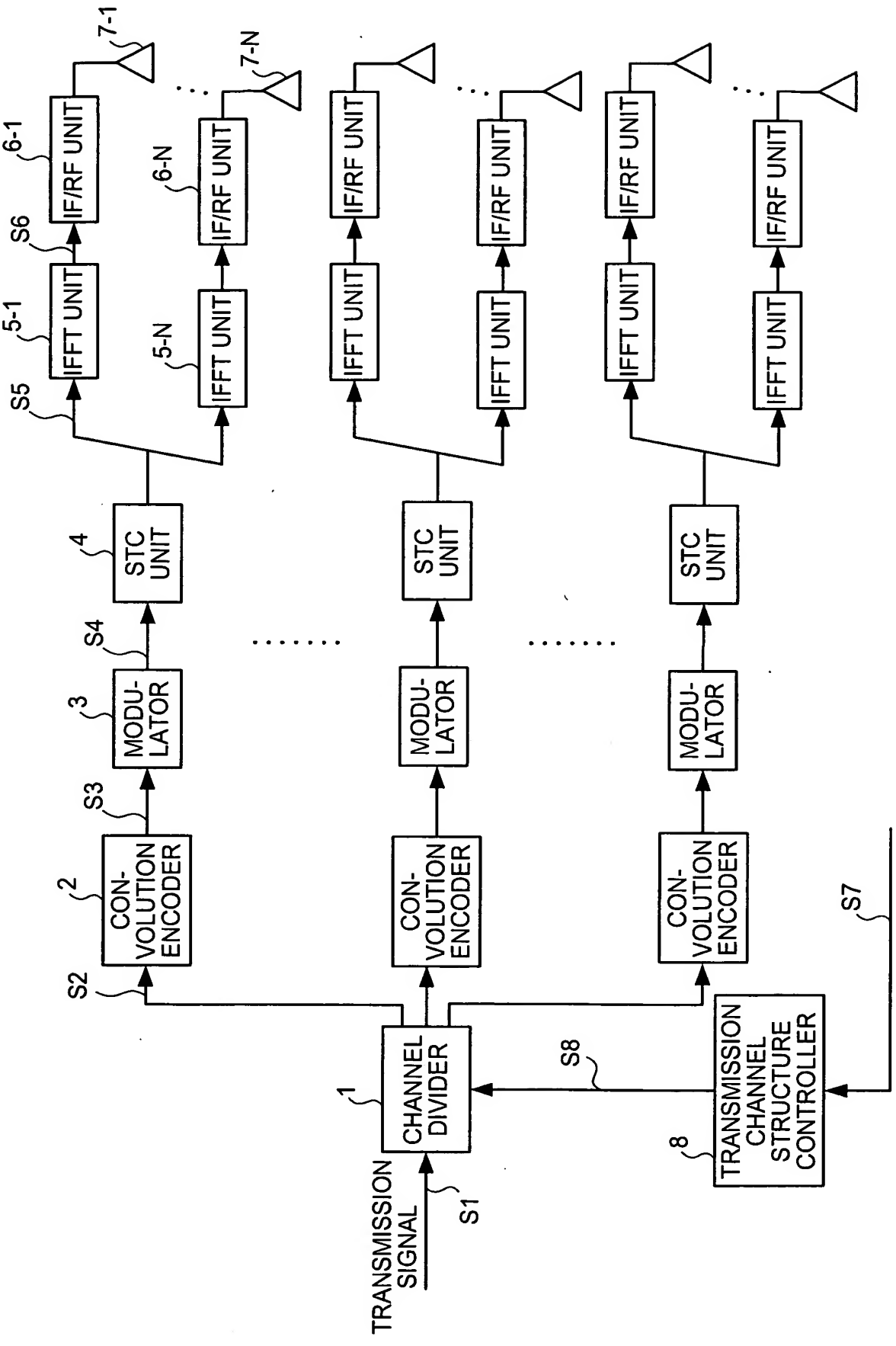

TRANSMISSION SIGNAL
S1
CHANNEL DIVIDER
1
S2
CON-VOLUTION ENCODER
2
S3
MODU-LATOR
3
S4
STC UNIT
4
S5
IFFT UNIT
5-1
5-N
S6
IF/RF UNIT
6-1
6-N
7-1
7-N
S7
S8
TRANSMISSION CHANNEL STRUCTURE CONTROLLER
8

FIG.3

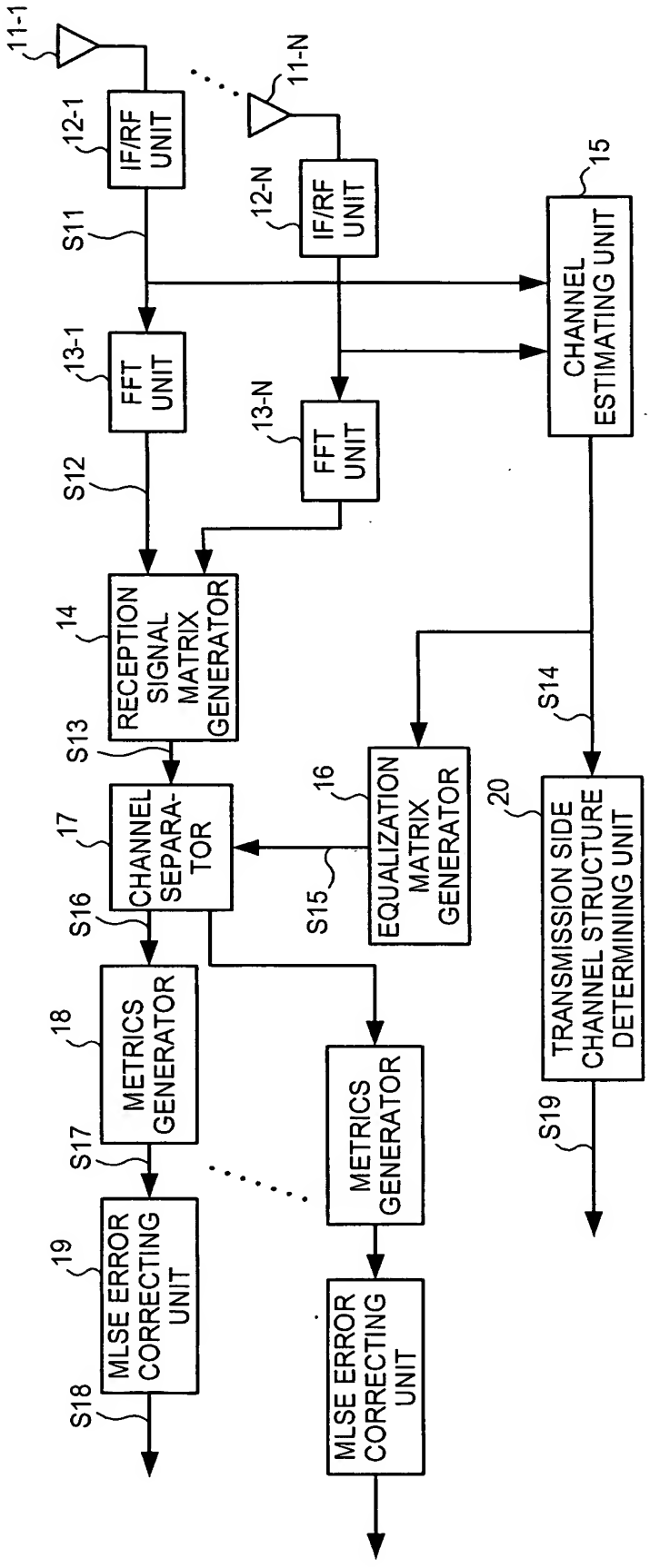

11-1
11-N
12-1
IF/RF UNIT
12-N
IF/RF UNIT
S11
15
CHANNEL ESTIMATING UNIT
13-1
FFT UNIT
13-N
FFT UNIT
S12
14
RECEPTION SIGNAL MATRIX GENERATOR
S13
16
EQUALIZATION MATRIX GENERATOR
S14
17
CHANNEL SEPARA-TOR
S15
20
TRANSMISSION SIDE CHANNEL STRUCTURE DETERMINING UNIT
S16
18
METRICS GENERATOR
METRICS GENERATOR
S17
S19
19
MLSE ERROR CORRECTING UNIT
MLSE ERROR CORRECTING UNIT
S18

FIG.4

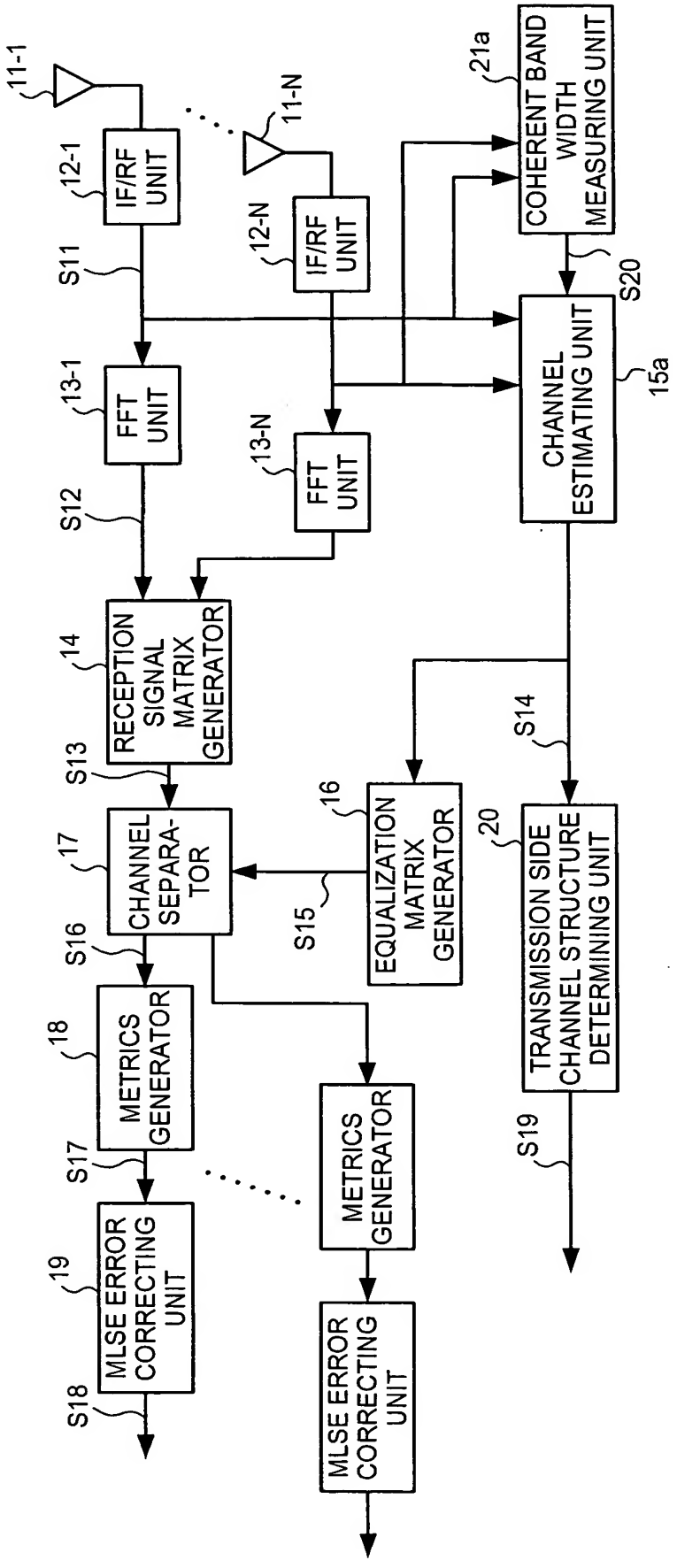
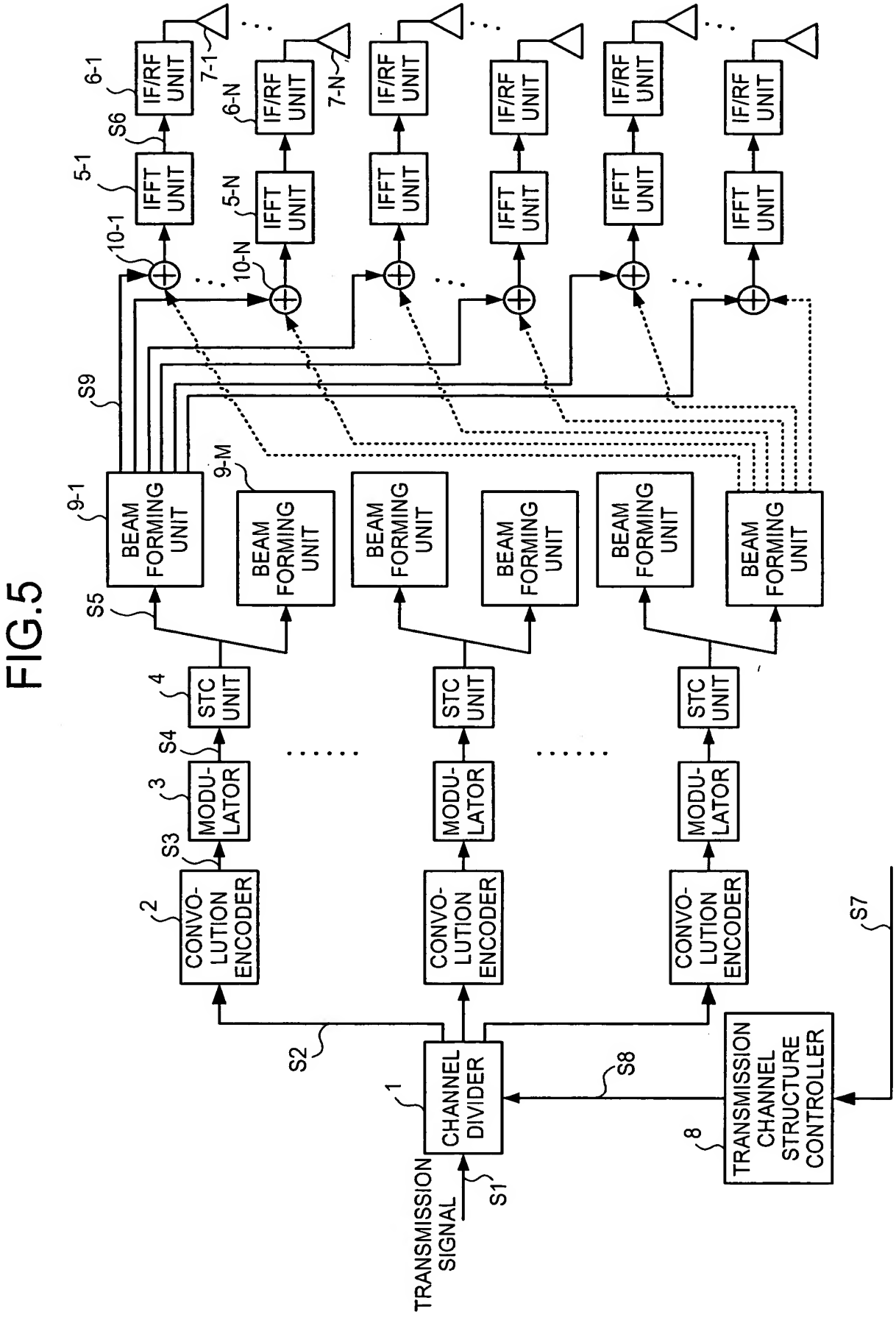

11-1
11-N
12-1
IF/RF UNIT
12-N
IF/RF UNIT
21a
COHERENT BAND WIDTH MEASURING UNIT
S11
S20
13-1
FFT UNIT
13-N
FFT UNIT
CHANNEL ESTIMATING UNIT
15a
S12
14
RECEPTION SIGNAL MATRIX GENERATOR
S13
S14
16
EQUALIZATION MATRIX GENERATOR
20
TRANSMISSION SIDE CHANNEL STRUCTURE DETERMINING UNIT
17
CHANNEL SEPARA-TOR
S15
S16
18
METRICS GENERATOR
METRICS GENERATOR
S17
S19
19
MLSE ERROR CORRECTING UNIT
MLSE ERROR CORRECTING UNIT
S18

FIG.5


TRANSMISSION SIGNAL
S1
CHANNEL DIVIDER
1
S2
CONVO-LUTION ENCODER
2
S3
MODU-LATOR
3
S4
STC UNIT
4
S5
BEAM FORMING UNIT
9-1
9-M
S9
IFFT UNIT
5-1
5-N
S6
IF/RF UNIT
6-1
6-N
7-1
7-N
10-1
10-N
S8
TRANSMISSION CHANNEL STRUCTURE CONTROLLER
8
S7